REMARKS

This paper is filed in response to the Office Action mailed on June 27, 2003. Presently, Claims 14-57 are pending. Claims 14-57 have been examined and Claims 14-37 and 42-57, stand rejected. Claims 38-41 are allowed. Claim 58 has been added.

Applicants respectfully request consideration of Claims 14-37, and 42-58.

The Rejection of Claims 14, 23, and 49 Under 35 U.S.C. § 102(b)

Claims 14, 23, and 49 are rejected under 35 U.S.C. § 102(b) as being anticipated by Ito et al. (JP 64-022932, abstract).

The Examiner states that "Ito et al. teaches an electrolytic thin film having a low film resistance and excellent mechanical strength and useable in a fuel cell by filling an ion exchange polymer in pores of a porous thin film consisting of an ultrahigh molecular weight polyolefin. The solid electrolytic thin film is obtained by filling an ion exchange polymer in pores of a porous polyolefin thin film."

Applicants respectfully traverse the rejection for the following reasons.

Independent Claim 14 recites, "one end of a molecule of the graft polymer is bound to a surface of the pore."

In direct contrast to Claim 14, the Ito et al. reference does not describe a graft polymer bound to a surface of the pore. The Ito et al. reference describes "filling an ion exchange polymer in pores of a porous film." Applicants believe "filling" is not the same as "bound."

For a reference to be anticipatory, the reference must exactly describe the claimed invention. Because the Ito et al. reference does not describe "one end of a molecule of the graft polymer is bound to a surface of the pore," the Ito et al. reference is not anticipatory.

Furthermore, the Ito et al. reference does not remotely teach or suggest the invention defined by Claim 1. The invention defined by Claim 1 has the graft polymer bound to the

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surface of a pore which advantageously prevents release of the polymer at elevated temperatures, and from being washed away.

Claim 23 is dependent from Claim 14, therefore, Claim 23 is not anticipated, nor obvious, in view of the Ito et al. reference.

Independent Claim 49 is directed to a method of manufacturing a fuel cell, and recites "applying a sol to a first electrode and forming a porous thin layer from the applied sol." In direct contrast to Claim 49, the Ito et al. reference, appears to describe heating, dissolving, and drawing as steps to produce a thin film.

For a reference to be anticipatory, the reference must exactly describe the claimed invention. Because the Ito et al. reference does not describe a method for manufacturing a fuel cell which comprises applying a sol to a first electrode and forming a porous thin layer from the applied sol, the Ito et al. reference is not anticipatory.

Furthermore, the Ito et al. reference does not remotely teach or suggest the method of manufacturing a fuel cell by applying a sol to a first electrode and forming a porous thin layer from the applied sol.

Accordingly, the withdrawal of the rejection of Claims 14, 23, and 49 is respectfully requested.

The Rejection of Claims 14-17, 19, 21, 23-25, 27, 28, 30-32, 34, 35, 37, 42, 43, 45, and 46.

Claims 14-17, 19, 21, 23-25, 27, 28, 30-32, 34, 35, 37, 42, 43, 45, and 46 are rejected under 35 U.S.C. § 102(b) as being anticipated by Koseki et al. (JP 07-065624, abstract and translation).

The Examiner states that "Koseki et al. teaches a proton conductive solid electrolyte is contained in or held by a high polymer fine porous film in which a carrier of alumina or the like is used and a proton conductive electrolytic solution is filled in the voids and is fixed."

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Applicants respectfully traverse the rejection for the following reasons.

According to independent Claims 14, 24, 31, and 42, a graft polymer molecule is bound to a surface of a pore, said graft polymer having proton conductivity and being derived from monomers having an ion-exchange group.

In direct contrast to Claims 14, 24, 31, and 42, Koseki et al. describes the materials having proton conductivity are inorganic non-polymeric materials, such as $H_3PO_4(WO_3)_{12}29H_2O$,$ZrO(H_2SO_4)_2$ $7H_2O$, $H_3OUO_2PO_4$ $3H_2O$. Applicants submit such materials are not graft polymer molecules.

For a reference to be anticipatory, the reference must exactly describe the claimed invention. Because Koseki et al. does not describe a graft polymer molecule having proton conductivity, wherein the graft polymer is bound to a surface of a pore, the reference is not anticipatory.

Furthermore, Koseki et al. does not remotely teach or suggest a graft polymer having proton conductivity, wherein the graft polymer having proton conductivity is bound to a surface of a pore.

Accordingly, independent Claims 14, 24, 31, and 42 are not anticipated by Koseki et al. Claims 15-17, 19, 21, 23, 25, 27, 28, 30, 32, 34, 35, 37, 43, 45, and 46 are dependent directly or indirectly from one of Claims 14, 24, 31, and 42.

Accordingly, the withdrawal of the rejection of Claims 14-17, 19, 21, 23-25, 27, 28, 30-32, 34, 35, 37, 42, 43, 45, and 46 is respectfully requested.

The Rejection of Claim 14 Under 35 U.S.C. § 102(b)

Claim 14 is rejected under 35 U.S.C. § 102(b) as being anticipated by Yamaguchi et al. (JP 03-098632, abstract).

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The Examiner states that "Yamaguchi et al. teaches methylacrylate is plasma-polymerized on a finely porous membrane of a super high molecular weight. The fine pores of the finely porous membrane are blocked up by the polyermization."

Applicant traverses the rejection for the following reasons.

Independent Claim 14 is directed to an electrolyte membrane and recites, "the graft polymer has proton conductivity and is derived from monomers having an ion-exchange group." Claim 14 further recites that "one end of a molecule of the graft polymer is bound to a surface of the pore."

In direct contrast to Claim 14, Yamaguchi et al. is directed to a separation membrane. The acrylic graft polymer described in Yamaguchi does not appear to have proton conductivity derived from monomers having an ion-exchange group. Furthermore, the Yamaguchi et al. reference describes blocking up the pores, directly contrasting binding the graft polymer to the surface of the pore, as defined by Claim 14.

For a reference to be anticipatory, the reference must exactly describe the claimed invention. Because Yamaguchi et al. neither describes a graft polymer that has proton conductivity and is derived from monomers having an ion exchange group, nor the graft polymer being bound to a surface of the pore, the Yamaguchi et al. reference is not anticipatory.

Accordingly, the withdrawal of the rejection of Claim 14 is respectfully requested.

Allowable Subject Matter

Claims 18, 20, 22, 26, 29, 33, 36, 44, 47, 48, 50-57 are objected to as being dependent upon a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For all of the reasons stated above, applicants submit these claims are now allowable.

Applicants note the allowance of Claims 38-41 with appreciation.

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New Claim 58

New Claim 58, recites "a porous substrate, wherein a proton conductive, graft polymer having an ion-exchange group is chemically bound to a surface of the pore."

Therefore, Claim 58 is allowable over the applied references.

CONCLUSION

In view of the foregoing remarks, applicants submit that Claims 14-58 are allowable. If the Examiner has any further questions or comments, the Examiner may contact the undersigned attorney at the number provided below.

Respectfully submitted,

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